



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,637	06/25/2003	Takaaki Kutsuna	396.42795X00	1073
20457	7590	11/02/2009		
ANTONELLI, TERRY, STOUT & KRAUS, LLP			EXAMINER	
1300 NORTH SEVENTEENTH STREET				PATTERSON, MARC A
SUITE 1800			ART UNIT	PAPER NUMBER
ARLINGTON, VA 22209-3873			1794	
			NOTIFICATION DATE	DELIVERY MODE
			11/02/2009	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

dlee@antonelli.com  
rrodriguez@antonelli.com  
lthenor@antonelli.com



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/602,637

Filing Date: June 25, 2003

Appellant(s): KUTSUNA ET AL.

---

William I. Solomon  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed July 20, 2009 appealing from the Office action mailed December 10, 2008.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct, but the 35 U.S.C. 103(a) rejection of Claim 23 as being unpatentable over Gerdes et al (U.S. Patent No. 4,719,135) in view of Tashiro et al (U. S. Patent No. 3,704,229) and Watanabe et al (U.S. Patent No. 5,474,853), of record in the previous Action, is withdrawn.

The rejection is withdrawn, and a new rejection is provided below, because on page 5 of the previous Action the Examiner inadvertently omitted the Huang et al reference in the rejection

of Claim 23. The rejection should have included Huang et al because Claim 23 is dependent on Claim 1, and the rejection of Claim 1 included Huang et al.

### **NEW GROUND(S) OF REJECTION**

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gerdes et al (U.S. Patent No. 4,719,135) in view of Tashiro et al (U. S. Patent No. 3,704,229) and Huang et al (U.S. Patent No. 3,683,044) and further in view of Watanabe et al (U.S. Patent No. 5,474,853).

Gerdes et al, Tashiro et al and Huang et al disclose a fuel system as discussed under Heading (9) of this examiner's answer, however, Gerdes et al, Tashiro et al and Huang et al fail to disclose an epoxy resin having a glycidylamine part derived from 1,3-bis(aminomethyl)-cyclohexane..

Watanabe et al teach an epoxy resin having a glycidylamine part derived from bis(aminomethyl) - cyclohexane (column 7, lines 38 - 41) for the purpose of obtaining cured products having improved rigidity (column 7, line 5). One of ordinary skill in the art would therefore have recognized the advantage of providing for the epoxy resin of Watanabe et al in Gerdes et al, Tashiro et al and Huang et al, which comprises an epoxy resin, depending on the desired rigidity of the end product.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for an epoxy resin having a glycidylamine part derived from bis(aminomethyl) - cyclohexane in order obtain a cured product having improved rigidity as taught by Watanabe et al.

The blending proportion of the epoxy resin to the epoxy resin curing agent falls in a range of 1.2 to 3.0 in terms of the ratio of active hydrogen to epoxy group (curing agent is utilized in stoichiometric excess of 1.5 molar excess; column 3, lines 65 - 68; column 4, lines 1 – 2); the claimed formula (1) would therefore be contained in the amount of 30% by weight.

## **(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

## **(8) Evidence Relied Upon**

4,719,135	GERDES et al.	1-1988
3,704,229	TASHIRO et al.	11-1972
3,683,044	HUANG et al.	8-1972
5,474,853	WATANABE et al.	12-1995

## **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

### ***Claim Rejections – 35 USC § 103(a)***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 - 2, 6, 8 - 22 and 24 - 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerdes et al (U.S. Patent No. 4,719,135) in view of Tashiro et al (U.S. Patent No. 3,704,229) and Huang et al (U.S. Patent No. 3,683,044).

With regard to Claims 1 - 2, 6, 8, 10 - 14, 17 - 18, 20, 22 and 24, Gerdes et al discloses a fuel system comprising a fuel vessel (fuel tank; column 1, lines 8 - 11) which is molded and therefore has molded parts (column 2, lines 41 - 45) constituted from a thermoplastic resin (high density polyethylene; column 2, lines 43 - 45) and a coating layer formed on the surface of the outside of the vessel body (coating of varnish, therefore on the molded parts; column 1, lines 51 - 55) formed by curing an epoxy resin composition comprising an epoxy resin and an epoxy resin curing agent (column 2, lines 50 - 55), the coating layer having a gasoline permeability coefficient of 2g mm/m day or less at 60 degrees Celsius and a relative humidity of 60% RH (fuel impermeability, therefore no permeability, therefore a barrier layer; column 3, lines 36 - 37). Gerdes et al fail to disclose an epoxy curing agent comprising a reaction product of metaxylylenediamine and an acrylic acid derivative which can form an amide by reacting with polyamine to form an oligomer and an epoxy resin having a glycidylamine part derived from metaxylylenediamine.

Tashiro et al teach a curing agent for epoxy which comprises a reaction product (column 1, lines 59 - 52) of metaxylylenediamine (column 2, line 14) and acrylic acid derivative (acrylic acid ester; column 1, line 63), which is used for the purpose of obtaining an epoxy that is curable in a wet state (column 1, lines 28 - 31). One of ordinary skill in the art would therefore have recognized the advantage of providing for the curing agent of Tashiro et al in Gerdes et al, which comprises an epoxy, depending on the desired properties of the end product.

Huang et al teach an epoxy resin having a glycidylamine part derived from metaxylylenediamine (column 2, lines 1 - 6) for the purpose of obtaining cured products having excellent heat resistance (column 5, lines 57 - 59). One of ordinary skill in the art would therefore have recognized the advantage of providing for the epoxy resin of Huang et al in Gerdes et al, which comprises an epoxy resin, depending on the desired heat resistance of the end product.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for a cured epoxy comprising a reaction product of metaxylylenediamine and acrylic acid derivative in Gerdes et al in order to obtain an epoxy that is curable in a wet state as taught by Tashiro et al and to have provided for an epoxy resin having a glycidylamine part derived from metaxylylenediamine in order obtain a cured product having excellent heat resistance as taught by Huang et al. The claimed aspect of the acrylic acid derivative being a derivative that can form an amide by reacting with polyamine to form an oligomer is given little patentable weight as it is directed to a process limitation rather than a structural limitation.

The blending proportion of the epoxy resin to the epoxy resin curing agent falls in a range of 1.2 to 3.0 in terms of the ratio of active hydrogen to epoxy group (curing agent is utilized in stoichiometric excess of 1.5 molar excess; column 3, lines 65 - 68; column 4, lines 1 - 2); the claimed formula (1) would therefore be contained in the amount of 30% by weight.

With regard to Claim 9, because Gerdes et al disclose a fuel vessel which is coated, Gerdes et al disclose coating of an area rate of 100%.

With regard to Claims 15 - 16, the container disclosed by Gerdes et al is a tube (canister, therefore cylindrical, therefore having a tube body; column 1, lines 8 - 10).

With regard to Claim 19, Tashiro et al teach an acrylic acid derivative, as stated above; the mole ratio is therefore 0.3 to 0.97 in terms of amino groups to reactive function groups in the epoxy.

With regard to Claim 21, the thickness of the coating layer disclosed by Gerdes et al is in a range of 1 to 200 (column 4, line 55).

With regard to Claim 25, Gerdes et al also fail to disclose a number average molecular weight in a range of 80 to 4,000. However, because Gerdes et al disclose an epoxy resin, it would have been obvious for one of ordinary skill in the art to have provided, the routine optimization, for the selection of molecular weight depending on the desired weight of the coating.

#### **(10) Response to Argument**

Appellant argues that because Tashiro et al and Huang et al do not teach fuel systems, the combination of Tashiro et al and Huang et al with Gerdes et al is improper.

However, because an epoxy resin and curing agent are disclosed by Gerdes et al, and it would have been obvious for one of ordinary skill in the art to have provided for the curing agent of Tashiro et al and the epoxy resin of Huang et al as the curing agent and epoxy resin of Gerdes et al, the combination of Tashiro et al and Huang et al with Gerdes et al is proper.

Appellant also argues that Appellant's declaration provides evidence that Epikote 828, when cured using the curing agent of Tashiro et al according to Example 1 of Tashiro et al,

provide a gasoline permeability that is higher than that of the claimed invention, and that unexpectedly better results are therefore achieved by the present invention.

However, although Gerdes et al disclose at column 2, lines 59 - 62 that Epikote 828 is a particularly suitable epoxy resin, Gerdes et al is not limited to the use of Epikote 828. Furthermore, as stated above, it would have been obvious for one of ordinary skill in the art to have provided for the curing agent of Tashiro et al and the epoxy resin of Huang et al as the curing agent and epoxy resin of Gerdes et al, thus providing a polymer having the structure of the claimed invention. The results cited by Appellant therefore do not address the closest prior art of record.

Appellant also argues that although the previous Action states that the declaration does not compare the claimed invention to the closest prior art, the declaration uses an epoxy resin curing agent even closer to the present invention than the closest prior art, and thus constitutes a proper test.

However, as stated above, because the tests are limited to the use of Epikote 828, and it would have been obvious for one of ordinary skill in the art to have provided for the epoxy resin of Huang et al, the results cited by Appellant therefore do not address the closest prior art of record.

Appellant also argues that Epikote 828 is an epoxy resin used in examples of Tashiro et al.

However, Tashiro et al is not limited to the curing of Epikote 828.

Appellant also argues that the curing agent of Gerdes et al is different from the curing agent of the claimed invention.

However, as stated above, it would have been obvious for one of ordinary skill in the art to have provided for Tashiro et al as the curing agent of Gerdes et al.

Appellant also argues that it is not required for Appellant to compare their invention with a combination of teachings of references.

However, as stated above, although the comparison is not required to show that the claimed invention may provide a gasoline permeability that is lower than the gasoline permeability achieved by Epikote 828, the results cited by Appellant therefore do not address the combination of Gerdes et al, Tashiro et al and Huang et al.

Appellant also argues that Tashiro et al disclose only a 70:30 mixture of metaxylylenediamine and paraxylylenediamine, and that one of ordinary skill in the art would understand that the reaction product of Tashiro et al is completely different from the claimed curing agent.

However, because Tashiro et al disclose a curing agent that is a reaction product of metaxylylene and a derivative of acrylic acid, the curing agent, as claimed, is not different from Tashiro et al.

Appellant also argues that Gerdes et al requires an amine - based curing agent, rather than the claimed curing agent.

However, as stated in the previous Action, the claimed curing agent is taught by Tashiro et al; furthermore, Tashiro et al teaches that the curing agent is an amine based curing agent, because the curing agent has an amine number.

Appellant also argues that the epoxy resin of Tashiro et al and curing agent of Huang et al are ignored.

However, Tashiro et al is not limited to the curing of any one epoxy resin, and Huang et al is not limited to any one curing agent.

Apellaant also argues that xylylenediamine is not disclosed by Gerdes et al, and that Gerdes et al therefore do not disclose the claimed structure.

However, as stated above, metaxylylenediamine, therefore xylylenediamine, is taught by Gerdes et al.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

This examiner's answer contains a new ground of rejection set forth in section (9) above. Accordingly, appellant must within **TWO MONTHS** from the date of this answer exercise one of the following two options to avoid *sua sponte dismissal of the appeal* as to the claims subject to the new ground of rejection:

(1) **Reopen prosecution.** Request that prosecution be reopened before the primary examiner by filing a reply under 37 CFR 1.111 with or without amendment, affidavit or other evidence. Any amendment, affidavit or other evidence must be relevant to the new grounds of rejection. A request that complies with 37 CFR 41.39(b)(1) will be entered and considered. Any request that prosecution be reopened will be treated as a request to withdraw the appeal.

(2) **Maintain appeal.** Request that the appeal be maintained by filing a reply brief as set forth in 37 CFR 41.41. Such a reply brief must address each new ground of rejection as set forth in 37 CFR 41.37(c)(1)(vii) and should be in compliance with the other requirements of 37 CFR

41.37(c). If a reply brief filed pursuant to 37 CFR 41.39(b)(2) is accompanied by any amendment, affidavit or other evidence, it shall be treated as a request that prosecution be reopened before the primary examiner under 37 CFR 41.39(b)(1).

Extensions of time under 37 CFR 1.136(a) are not applicable to the TWO MONTH time period set forth above. See 37 CFR 1.136(b) for extensions of time to reply for patent applications and 37 CFR 1.550(c) for extensions of time to reply for ex parte reexamination proceedings.

Respectfully submitted,

/Marc A Patterson/

Primary Examiner, Art Unit 1794

**A Technology Center Director or designee must personally approve the new ground(s) of rejection set forth in section (9) above by signing below:**

/Christopher A. Fiorilla/

Supervisory Patent Examiner, Art Unit 1700

**Conferees:**

/Rena L. Dye/  
Supervisory Patent Examiner, Art Unit 1794

/Christopher A. Fiorilla/

Chris Fiorilla

Supervisory Patent Examiner, Art Unit 1700